

FOUR NEW MOTHS FROM TEXAS  
(LEPIDOPTERA, GEOMETRIDAE, NOCTUIDAE)

ANDRÉ BLANCHARD AND EDWARD C. KNUDSON

(AB) 3023 Underwood, Houston, Texas 77025; (ECK) 808 Woodstock, Bellaire, Texas 77401.

---

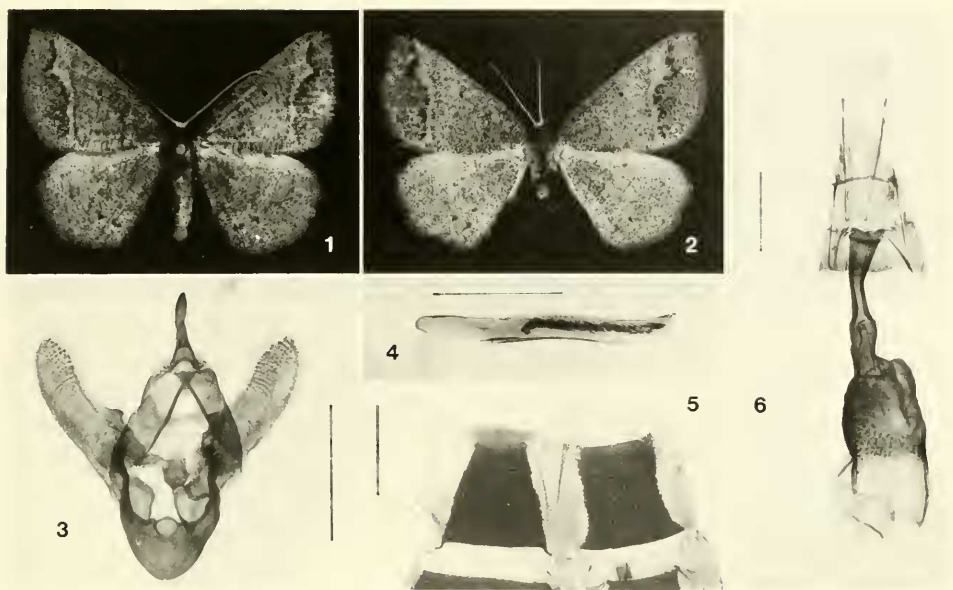
*Abstract.*—Four new species of Lepidoptera are described and illustrated from examples collected in Texas. In the Geometridae, *Drepanulatrix garneri* is described; in the Noctuidae, *Paramiana exulta*, *Euamiana adusta*, and *Tarachidia septuosa* are described.

---

Four new species are described from examples collected in UV light traps by the authors at various localities in Texas. The geometrid genus *Drepanulatrix* was revised by Rindge (1949), at which time only *D. bifilata* (Hulst) was known from Texas. Since that time, three additional species have been collected in Texas by us, including *D. unicalcaria* (Guenée), *D. hultii* (Dyar), and the new species described below. In the noctuid subfamily Acontiinae, the closely related genera *Tarachidia* and *Acontia* are represented in Texas by more than 40 named species, as well as several that are apparently undescribed. These and other related genera are badly in need of revision, both at generic and specific levels. The taxon described below, however, is quite distinct from other North American species and is placed in *Tarachidia* with some reservations, though it agrees with the characters outlined for *Acontia* by Forbes (1954). In the amphipyrene tribe Noclolini, the genera *Euamiana* and *Paramiana* are extremely close, being chiefly distinguished by the presence or absence of a tubercle on the front (Robert W. Poole, pers. comm.). The two species described below were placed generically according to this character and also on the advice of Poole.

*Drepanulatrix garneri*, Blanchard & Knudson, NEW SPECIES

Male.—*Head*: Front dark reddish brown; vertex pinkish-ochreous between antennae, dark reddish brown behind. Labial palpi dark reddish brown, third segment slightly paler. Antennae bipectinate, except for terminal 13 segments, which are slightly serrate; scape and shaft of flagellum pinkish-ochreous dorsally, pectinations scaled dorsally, black with whitish at the extreme tip; beneath, unscaled, moderately setose. Thorax reddish brown, speckled with fuscous above; beneath light reddish brown, legs ochreous brown, hind tibiae speckled with black. Abdomen reddish brown above, paler beneath. *Forewings*: Ground color varies from pinkish-gray to orange brown, diffusely speckled with black, giving a purplish cast to the naked eye. Antemedial line weakly defined, blackish, nearly vertical from dorsal margin at  $\frac{1}{3}$  the distance from base, slightly outwardly angled over cell, not clearly reaching costal margin. Postmedial line blackish, from dorsal margin



Figs. 1–6. *Drepanulatrix garneri*. 1, Holotype male. 2, Paratype female. 3, Male genitalia, aedeagus removed. 4, Aedeagus. 5, Eighth abdominal segment. 6, Female genitalia. Segment = 1 mm.

at  $\frac{3}{4}$  the distance from base, nearly straight, not reaching costal margin. Subterminal line and the space between it and postmedial line constitute the most conspicuous feature of the maculation. The intervening space is not irrorated with black scales, as is the rest of the wing and thus appears much paler. Subterminal line complete or interrupted, black, from dorsal margin very near postmedial line and paralleling it to  $M_2$  from where it diverges, forming an outwardly directed cusp just below  $M_1$ , thence outwardly concave to costal margin. Subterminal space beyond subterminal line slightly more heavily irrorated with blackish. Discal spot black, well defined. Fringe concolorous with ground. *Hindwing* nearly concolorous with forewing, slightly paler towards cubital margin. Subterminal line defined only as 3 or 4 whitish margined black spots near anal margin. Discal spot inconspicuous above, but well defined on underside; fringe concolorous with ground.

*Female*.—As for male, except for simple antennae, paler ground color and reduced forewing pattern. *Length of forewing*: Males:  $n = 3$ , 15.2–16.8 mm, average 15.8 mm; female:  $n = 1$ , 16.1 mm. *Male genitalia* (Figs. 3–5): Uncus finely setose, mucronate at apex; gnathos obsolete; valves with rounded process at base of costa; juxta a shield-like plate; aedeagus elongate, with apical spur and a row of numerous, thorn-like cornuti, which extends slightly more than half the total length of aedeagus. Eighth abdominal segment represented in Fig. 5, sternite on the right. *Genitalia* (Fig. 6): Papillae anales membranous, moderately setose; apophyses thin, slightly hooked at apices; ostium bursae a well sclerotized, shallow cup; posterior  $\frac{2}{3}$  of ductus bursae well sclerotized, dorso-ventrally compressed, anterior  $\frac{1}{3}$  somewhat expanded and ridged; corpus bursae an elongate ovoid, posterior half sclerotized and encircled by a band of thorn-like scobinations near middle, anterior half membranous; ductus seminalis from posterior end of bursa.

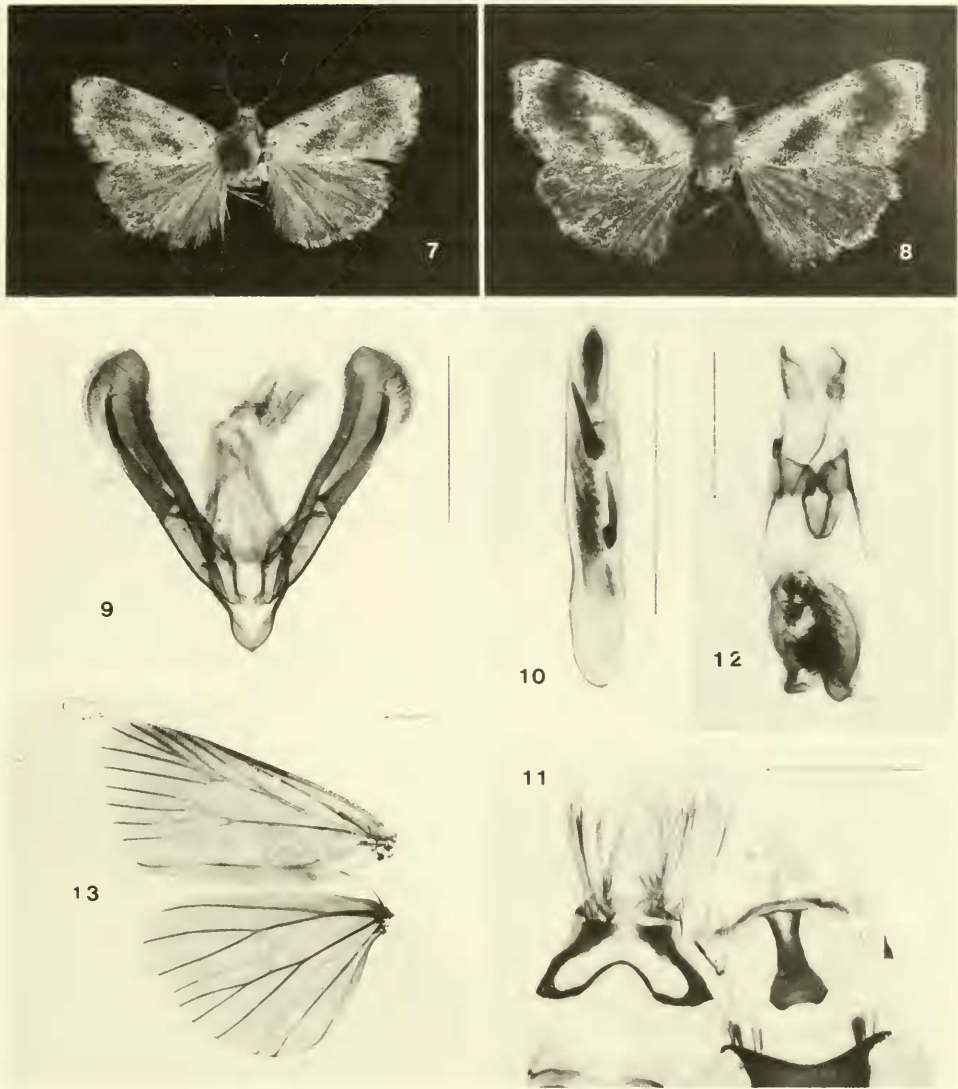
Types.—*Holotype*, ♂ (Fig. 1): Texas, Uvalde Co., Garner State Park, 24-III-85, collected by E. Knudson and deposited in the National Museum of Natural History. *Paratypes*: Same data as holotype, 1 ♂ (genitalia on slide ECK 1121 and represented in Fig. 5), 1 ♀ (genitalia on slide ECK 1123, represented in Figs. 2, 6 and deposited in the National Museum of Natural History); Comal Co., New Braunfels, 12-III-72, 1 ♂ (genitalia on slide AB 4920 and represented in Figs. 3, 4) collected by A. & M. E. Blanchard.

Remarks.—This new species appears to be confined to the Edwards' Plateau region of Texas and is apparently rare. The wing pattern is somewhat similar to that of *Drepanulatrix unicalcaria* (Gn), but the course of the subterminal line is different and in the authors' series of *unicalcaria* from trans-Pecos Texas, the ground color varies from gray brown to yellowish, but not the reddish or purplish tints of *garneri*. The male genitalia are somewhat similar to those of *D. hultsii* (Dyar), but that species lacks a costal process on the valves. The female genitalia are not closely similar to any described *Drepanulatrix* species. The new species is named for the principal type locality, Garner State Park, one of the most beautiful and popular parks in the state and dedicated to John Nance Garner, thirty-second vice president of the United States.

***Tarachidia septuosa*, Blanchard & Knudson, NEW SPECIES**

Figs. 7-13

Male and female.—*Head*: Front bulging, smooth, with clypeus a slightly raised ridge, clothed with flatly appressed pale brownish-ochreous (buff colored) scales; vertex rough scaled, buff; labial palpi ascending barely exceeding front, buff colored with dark brown bands at bases of 2nd and 3rd segments; antennae simple, scape light buff, flagellum scaled dorsally with pale buff and fuscous bands on each segment, ventrally bearing numerous short fine setae in male, sparsely setose in female. Thorax buff colored above and beneath; fore and mid tibiae and tarsi heavily irrorated with fuscous, with whitish bands at the joints; hind leg entirely pale buff. Abdomen dull olivaceous brown. *Forewings*: Both sexes alike. Ground color light buff irrorated with fuscous, especially along costal margin; from dorsal margin at basal  $\frac{1}{4}$ , is a broad, oblique, olivaceous brown fascia, angled towards apex, but weakened or interrupted over cell; postmedial band of the same color, broad and diffuse, outwardly convex just beyond cell; reniform represented as an olivaceous brown spot at apex of cell, blending with postmedial band. At basal  $\frac{1}{3}$  of costal margin is a diffuse, dull olivaceous brown spot; terminal line black, very thin; fringe pale buff with dull olivaceous brown spots at tornus and apical  $\frac{1}{3}$ . When fresh, specimens tend to have a definite greenish cast, which later fades. *Hindwings*: Fuscous, paler towards anal margin, fringe buff. *Length of forewing*: males:  $n = 5$ , 7.1-8.0 mm, average 7.5 mm; female:  $n = 1$ , 8.1 mm. *Wing venation* (Fig. 13): Forewing: 12 veins; R2 from accessory cell; stalk of R3-R4 connate with R5 from apex of accessory cell. Hindwing: 8 veins, M2 weak. *Male genitalia* (Figs. 9-11): Uncus straight, pointed, moderately setose, somewhat obscured by manica in Fig. 9; valves with elongate, curved clasper, extending nearly to apex; aedeagus nearly equal to combined lengths of uncus, tegumen and viculum, containing two strong, thorn-like cornuti. Eighth abdominal segment represented in Fig. 11, sternite on right. *Female genitalia* (Fig. 12): Papillae anales membranous, broad, moderately setose; apophyses posteriores slightly longer than apophyses



Figs. 7-13. *Tarachidia septuosa*. 7, Holotype male. 8, Paratype female. 9, Male genitalia, aedeagus removed. 10, Aedeagus. 11, Eighth abdominal segment. 12, Female genitalia. 13, Wing venation. Segment = 1 mm.

anteriores; sterigma consists of thickened and medially fused eighth segment sclerite, with well sclerotized lateral processes extending anteriorly behind ostial chamber; ductus bursae membranous, short; corpus bursae ovoid, with a large central patch of fine, thorn-like scobinations; ductus seminalis from anterior end of bursa.

Types.—*Holotype* (Fig. 7): ♂, Texas, Cameron Co., Laguna Atascosa, 16-V-74, genitalia on slide AB 3557, collected by A. & M. E. Blanchard and deposited in the National Museum of Natural History. *Paratypes*: Same county, Palmito Hill, 10 miles east of Brownsville, 13-X-79, 3 ♂ (genitalia of two on slides ECK 1032 and 1057, the former represented in Figs. 9, 10, the latter in Fig. 11; wings on

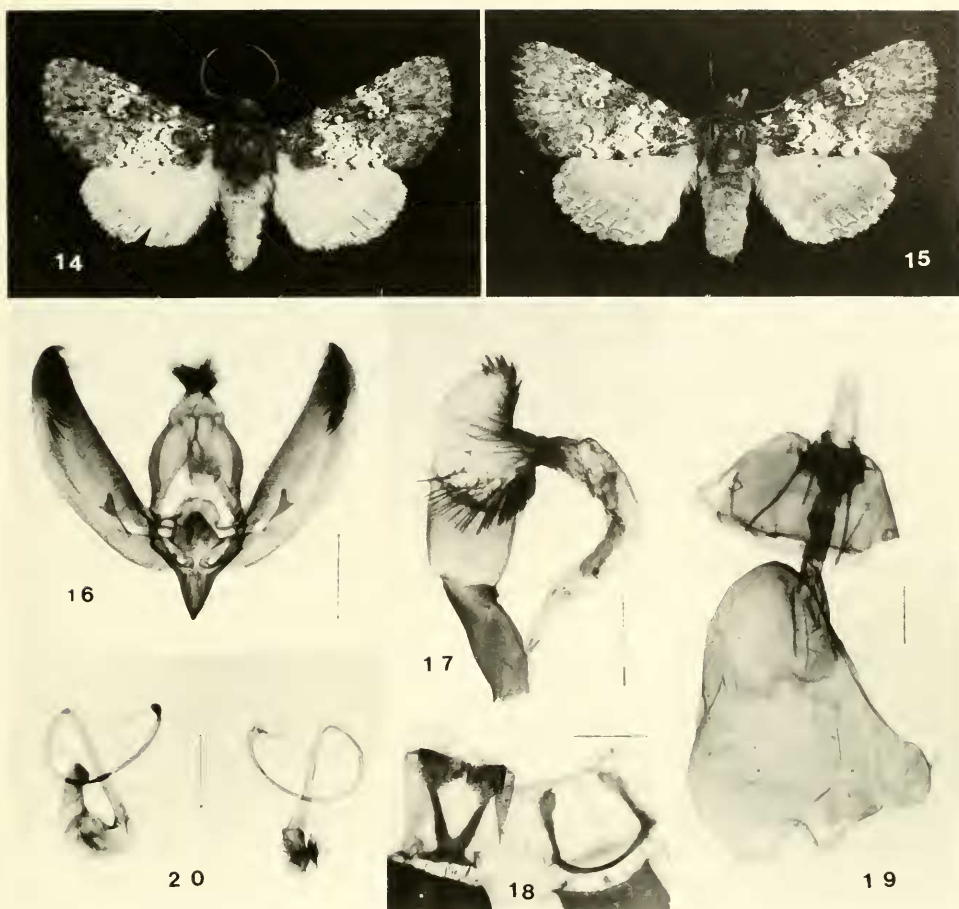
slide ECK 1115, represented in Fig. 13); Hidalgo Co., Santa Ana National Wildlife Refuge, 13-IX-80, 1 ♂; 21-X-84, 1 ♀ (in Fig. 8), genitalia on slide ECK 1049 (in Fig. 11), all collected by E. C. Knudson. One male paratype from Laguna Atascosa and the female paratype are deposited in the NMNH, others retained by collector.

Remarks.—This somber little species somewhat resembles a *Spragueia* in outward appearance, but the wing venation, front, and genitalia are more characteristic of *Tarachidia*, as currently classified. It is also somewhat similar to *Tarachidia parvula* (Walker), but that species lacks all traces of contrasting wing markings and has different genitalia.

***Paramiana exulta* Blanchard & Knudson, NEW SPECIES**

Figs. 14–20

Male and female.—*Head*: Front moderately bulging with low median keel and prominent shelf-like clypeus, clothed with flatly appressed, dark brown and pale ochreous scales, the lighter scales predominating toward the middle. Above clypeus is a blackish triangle of slightly raised scales. Vertex rough scaled, light brownish-ochreous. Labial palpi dorso-laterally dark brown, scales white tipped; medially light brown. Antennae simple; scape brown and ochreous dorsally, whitish ventrally; flagellum with each segment banded with whitish and dark brown dorsally, minutely setose ventrally. Thorax medium brown, clothed with a mixture of spatulate and hair-like scales, in a jumbled mixture of ochreous, brown, and blackish. Posterior tuft broad, but hardly elevated. Undersurface light brownish-ochreous; tibiae and tarsi dark brown, banded with whitish at joints. Abdomen light brownish-ochreous with moderate dorsal tuft on 1st segment. *Forewings*. Upper surface dark brown with conspicuous bluish white patch occupying middle  $\frac{1}{3}$  of dorsal margin and extending narrowly to costal margin basad of antemedial line. Basal half line black, enclosing some bluish-white scales at extreme base. Antemedial band from costal margin at basal  $\frac{1}{4}$ , strongly sinuate to dorsal margin at  $\frac{1}{3}$  the distance from base, inner and outer elements black, enclosing bluish-white center. Median line black, strongly sinuate and conspicuous only over pale dorsal patch. Postmedial line black, strongly dentate on veins; from costal margin at  $\frac{2}{3}$  the distance from base, outwardly convex beyond cell, and to dorsal margin at  $\frac{2}{3}$  the distance from base, lying just within pale dorsal patch. Orbicular round, bluish white, ringed with black. Reniform medially constricted, bluish white pupilled with blackish in upper and lower portions and ringed with black. Opposite reniform is a squarish, dull white costal spot followed by four tiny, evenly spaced, white costal spots. Subterminal line obscure, serrate, blackish, extending from outermost costal white spot towards tornus, where it disappears. Over middle of subterminal space, between M2 and M3, is a thin black dash. Termen with black intervenular dots. Fringe checkered, light and dark brown. *Hindwing*: Buff colored, suffused with fuscous along outer  $\frac{1}{3}$ ; postmedial line fuscous, obscure above, but well defined on undersurface. Fringe buff colored. *Length of forewing*: Males: n = 7, 15.7–17.2 mm, average 16.2 mm; females: n = 5, 16.3–18.1 mm, average 16.9 mm. *Male genitalia* (Figs. 16–18): Uncus elongate, pointed, heavily setose; valves with short, blunt clasper near base, apices clothed with heavy, spinose, hairlike setae; aedeagus short and broad, about  $\frac{1}{2}$  the combined length of uncus, tegumen, and vinculum; vesica rather broad, scobinate on basal  $\frac{1}{3}$ ; a row of many long spine-like cornuti at middle; a short row of shorter cornuti at apex. Eighth ab-



Figs. 14–20. *Paramiana exulta*. 14, Holotype male. 15, Paratype female. 16, Male genitalia, aedeagus removed. 17, Aedeagus with inflated vesica. 18, Eighth abdominal segment. 19, Female genitalia. 20, Spermatophores. Segment = 1 mm.

dominal segment represented in Fig. 18, sternite on right. *Female genitalia* (Figs. 19, 20): Papillae anales membranous, sparsely setose; apophyses anteriores and posteriores about equal in length; eighth segment sclerite a broad sclerotized ring; ventral wall of ostium membranous, broadly funnel shaped; ductus bursae membranous; corpus bursae membranous, without signum, ductus seminalis arising at anterior end. Spermatophores recovered from bursa in Fig. 19 represented in Fig. 20.

Types.—*Holotype* (Fig. 14): ♂, Texas, Jeff Davis Co., Mt. Locke, 20-VIII-84, collected by E. C. Knudson and deposited in the National Museum of Natural History. *Paratypes*: Same data, 3 ♂ (genitalia of two on slides ECK 1031 and ECK 1034, the latter represented in Figs. 16–18), 2 ♀ (one represented in Fig. 15, the other with genitalia on slide ECK 1040, represented in Figs. 19, 20; same locality, 27-VIII-70, 2 ♂, 1 ♀, collected by A. & M. E. Blanchard; same county, Ft. Davis, 24-VIII-67, 1 ♂, collected by A. & M. E. Blanchard; same county, Davis Mountains State Park, 1-IX-75, 1 ♀; 19-VIII-84, 1 ♂, collected by E. C. Knudson. One ♂ and

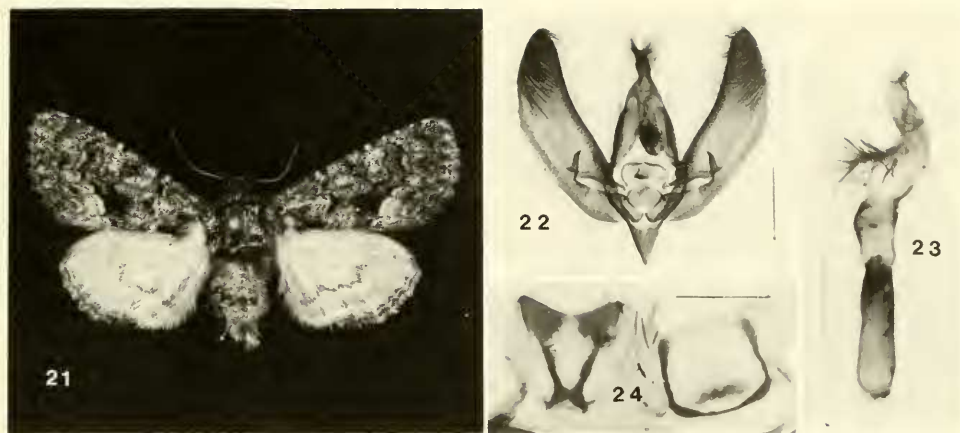
one ♀ paratype from Knudson collection donated to NMNH, and one ♂ donated to the American Museum of Natural History, others retained by collectors.

Remarks.—This striking moth appears to be confined to the Davis Mountains of Texas and is less common than the four other *Paramiana* species occurring in the same area. The moth is superficially similar to *Euamiana contrasta* (Barnes & McDunnough), from southern Arizona. This species differs from *P. exulta* in the presence of a frontal protuberance and also in pattern. In *E. contrasta*, the contrasting color is pure white, and it extends along the postmedial line to costal margin; the orbicular also has a dark center.

*Euamiana adusta*, Blanchard & Knudson, NEW SPECIES

Figs. 21–24

Male.—*Head*: Front slightly bulging with small median tubercle, clypeus hardly projecting; clothed with closely appressed dark brown scales. Vertex clothed with erect, hair-like dark brown scales, tipped with whitish. Labial palpi ascending, not reaching middle of front, blackish brown, many scales white tipped. Antennae simple, minutely setose ventrally, scape whitish, flagellum brown. Thorax. Collar, tegulae and mesonotum clothed with mixture of hair-like and forked, spatulate scales, blackish brown, with many scales white tipped; posterior tuft inconspicuous. Beneath, clothed with long hair-like pale ochreous scales; legs tibiae and tarsi blackish brown with pale ochreous bands at joints; tibiae with massive grayish brown scale tufts. Abdomen brown, scales white tipped, no mid-dorsal tuft. *Forewing*: Predominant shade dark brown, consisting of a mixture of scales in various shades of brown, buff, and black. Basal half line absent; area basad of antemedial line somewhat suffused with dull coppery brown and buff scales, especially at middle; at dorsal margin an elongate patch of black scales extends from near base to just short of antemedial line. Antemedial line from dorsal margin at basal  $\frac{1}{3}$ , black, somewhat interrupted on veins, with an outwardly directed cusp over lower  $\frac{1}{3}$ ; reaching costal margin at basal  $\frac{1}{4}$ . Orbicular and reniform hardly contrasted against ground color; orbicular round, ringed with black, center slightly suffused with whitish; reniform elongate, slightly medially constricted, otherwise like orbicular. Above reniform is a small whitish costal spot. Postmedial line from dorsal margin at basal  $\frac{2}{3}$ , black, consisting of outwardly directed lunules, the largest of which, over the lower fold, is preceded by a prominent black patch. Subterminal space suffused with coppery brown, but not strongly contrasted. Along outer  $\frac{1}{3}$  of costal margin are 4 tiny, evenly spaced white dots, the obscure, sinuate, subterminal line beginning at the outermost costal dot. Termen with black, intervenular dots. Fringe with a dark line at base, outwardly slightly checkered light and dark brown and somewhat crenulate. *Hindwing*: Buff colored, weakly irrorated with dark brown along outer  $\frac{1}{3}$ . Subterminal line dark brown, sinuate, not reaching costal margin. Terminal line dark brown, somewhat interrupted at veins. Fringe with dark line at base, externally brownish-buff. Undersurface with prominent subterminal line and dark shade along outer margin. Length of forewing,  $n = 2$ , 16.4 and 17.0 mm. *Female*: unknown. *Male genitalia* (Figs. 22–24): Uncus tapered to a blunt point, heavily setose; valves with short, pointed clasper, apices of valves clothed with fine, hair-like setae; aedeagus moderately elongate,  $\frac{3}{4}$  the combined length of uncus, tegumen, vinculum; vesica expanded in central  $\frac{1}{3}$ , armed with a



Figs. 21-24. *Euamiana adusta*. 21, Holotype male. 22, Male genitalia, aedeagus removed. 23, Aedeagus with inflated vesica. 24, Eighth abdominal segment. Segment = 1 mm.

row of innumerable long, spine-like cornuti. Eighth abdominal segments represented in Fig. 24, sternite on the right.

Types.—*Holotype* (Fig. 21): ♂, Texas, Jeff Davis Co., Davis Mts., Madera Canyon, 17-VIII-84, collected by E. C. Knudson and deposited in the National Museum of Natural History. *Paratype*: same data, 1 ♂ (genitalia on slide ECK 1044 and represented in Figs. 22-24), retained by collector.

Remarks.—This species is known only from two males collected in Madera Canyon (not to be confused with the celebrated Arizona canyon of the same name). It is superficially closest to *Euamiana dissimilis* (Barnes & McDunnough), but in that species, which has not been collected in Texas, the subterminal area of the forewing is distinctly lighter than the median area and the vesica of the aedeagus in *E. dissimilis* has short stubby basal spines and a stout apical spine.

#### ACKNOWLEDGMENTS

We are grateful to Robert W. Poole, Systematic Entomology Laboratory, Washington, D.C. for examining some of the type material, reviewing the manuscript, and providing comparative remarks for the new *Paramiana* and *Euamiana*. We also acknowledge the cooperation and assistance of officials of Texas Parks and Wildlife Dept., The McDonald Observatory, and Santa Ana and Laguna Atascosa National Wildlife Refuges.

#### LITERATURE CITED

- Forbes, W. T. M. 1954. Lepidoptera of New York and Neighboring States, Part III (Noctuidae). Cornell Univ. Agric. Expt. Sta. Mem. 329: 270-283.  
 Rindge, F. H. 1949. A Revision of the Geometrid Moths formerly assigned to *Drepanulatrix* (Lepidoptera). Bull. Am. Mus. Nat. Hist. 94: 235-298